No. 7600081

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Kentucky University Agricultural Experiment Station and U.S.D.A., A.R.S.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW* THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM,] TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

*[Waived]

FESCUE

'Kenhy'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 24th *day of* August *in the year of our Lord one thousand nine hundred and* seventy-seven

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(2-12-71)

UNITED STATES DEPARTMENT OF AGRICULTURE
CONSUMER AND MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY
Kenhy	Tall Fescue	PVPO NUMBER 7600081
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 5/19/76 — TIME 11:00 A.M.
Festuca arundinacea	Gramineae	
	5. DATE OF DETERMINATION	FEE RECEIVED $750.00 — CHARGES 750.00
	1970	

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
University of Kentucky	Agronomy Department Agricultural Science Center-North Lexington, Kentucky 40506	606/257-3321

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Agricultural Experiment Station	Kentucky	

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Robert C. Buckner
Agronomy Department
Agricultural Science Center - North
Lexington, Kentucky 40506

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 12A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52, P.L. 91-577)*
- [X] 12B. Exhibit B, Botanical Description of the Variety
- [X] 12C. Exhibit C, Objective Description of the Variety
- [X] 12D. Exhibit D, Data Indicative of Novelty
- [X] 12E. Exhibit E, Statement of the Basis of Applicant's Ownership

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable. *(See Section 52, P.L. 91-577).*

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a), P.L. 91-577) (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? Foundation and certified only

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act (P.L. 91-577).

March 12, 1976
(DATE)

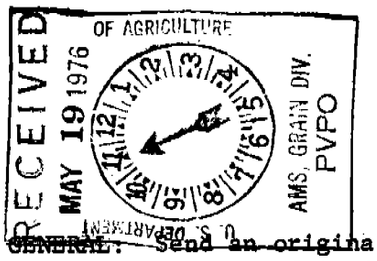
Robert C. Buckner
(SIGNATURE OF APPLICANT)

(DATE)

Shawn E. Bamhart
(SIGNATURE OF APPLICANT)

00001

FORM GR-470 (REVERSE)



INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $50.00 fee to U.S. Dept. of Agriculture, Consumer and Marketing Service, Grain Division, Hyattsville, Maryland 20782. Retain one copy for your files. All items on the face of the form are self-explanatory unles noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety.

12a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

12b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

12c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

12d Provide complete data indicative of novelty. Seed and plant specimens may be submitted and seeds submitted may be sterile. Where possible, include photographs of plant comparisons, chemical tests, etc.

12e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

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Exhibit A - Origin and Breeding History of Kenhy

F_1 hybrids were obtained during the springs of 1952 and 1953 between common annual ryegrass (Lolium multiflorum) (2n=14) x 'Kentucky 31' (Festuca arundinacea) (2n=42). Amphiploids (2n=56) were produced in a greenhouse during 1956-1957 by colchicine treatment of F_1 hybrids (2n=28) of annual ryegrass x tall fescue. Additional 56-chromosome plants were developed by pollinating male-sterile F_1 hybrids with pollen from colchicine-induced amphiploids (2n=56) in 1957, and 1958. Progenies of amphiploids segregating for chromosome number were screened during the fourth generation for stable 42-chromosome plants that exhibited hybrid characteristics, absence of leaf-roll, and high percent moisture of green weight during drought stress in August, 1968. The variety is a synthetic of polycross progenies of eleven 42-chromosome derivatives selected in August, 1968.

Breeder, foundation, and certified seed classes of Kenhy were evaluated (1970-1975) and compared with the standard check variety, 'Kentucky 31', for yield, forage quality, drought tolerance, and animal performance. The variety appears to remain stable during three generations for each characteristic (see bound tabular data).

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Exhibit C, Objective Description of Kenhy

18. Kenhy has seedling vigor characteristics of tall fescue. When managed as hay and pasture, it had 12 per cent higher dry matter yields than Kentucky 31. It was consistently higher than Kentucky 31 in digestibility, significantly lower in crude fiber and lignin and essentially equal in perloline (an alkaloid that inhibits digestibility in ruminants) content and crude protein. CO_2 diffusion, transpiration, water-use efficiency, photosynthesis, and dry matter production are reported to be related to pore size, frequency and distribution of stomata in leaves of several species. The stomatal frequency of Kenhy was considerably lower than Kentucky 31 which perhaps explains the significantly lower percentage leaf-roll and superior foliar color of Kenhy than Kentucky 31 during summer drought stress. When grazed free-choice with cattle, Kenhy was approximately 27 per cent better grazed than Kenwell, the most palatable commercially available tall fescue variety. Kenhy was superior to Kentucky 31 in average daily gain when grazed on 10 acre plantings during fall, winter, and spring in Georgia and Oklahoma; and during spring, summer, and fall in Missouri. Animal performance was not different on small plantings in Tennessee, and Illinois, and poorer on Kenhy than on Kentucky 31 in Virginia (see tabular data).

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Exhibit D, Data Indicative of Novelty

'Kenhy' tall fescue most closely resembles 'Kentucky 31' tall fescue more than any other variety. Novelty for 'Kenhy' when compared with 'Kentucky 31' is claimed on the basis of superior vigor, superior forage quality /Nutritive Value Index (digestibility), amino acid content, fiber and lignin content, and palatability/, and superior drought tolerance (less leaf roll, lower stomatal frequency, and greater water-use efficiency).

Exhibit E, Statement of the Basis of Applicant's Ownership.

The Kentucky Agricultural Experiment Station.

Table 16. Percentage leaf roll of tall fescue varieties during drought in Kentucky.

Varieties	Test 102			Test Fld No. 5			Mean of Tests & Years
	1972	1973	Mean	1972	1973	Mean	
Kenhy	57.5	53.4	55.4	41.8	57.7	49.7	52.6
Ky 31	66.2	63.2	64.7	63.0	67.6	65.3	65.0
LSD. .05	3.4	3.4	3.0			7.0	
.01	5.2	6.3	5.5			12.8	
CV.(%)	3.1	2.6	3.1			7.6	

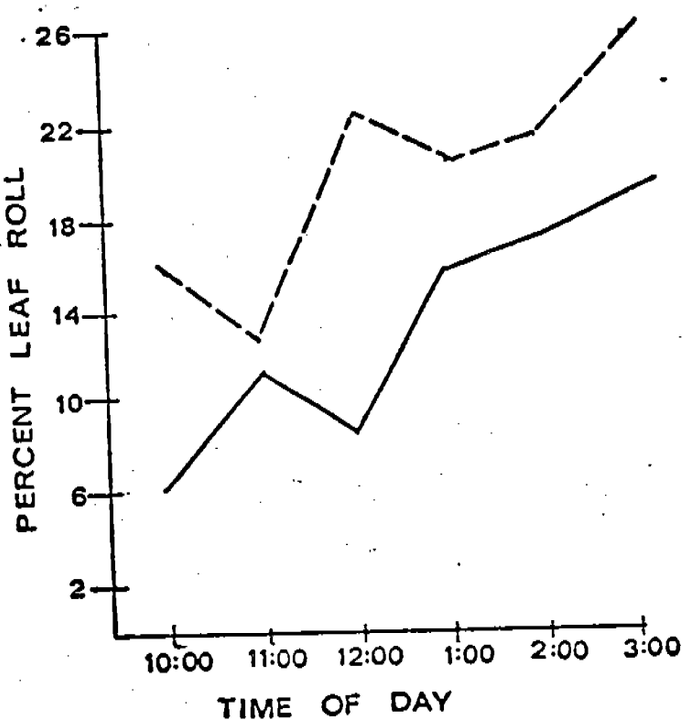
Table 17. Stomatal characterization of tall fescue varieties grown in Kentucky during, 1974.

Variety	n=	Pore size (nm^2) 10:00 am	Pore size (nm^2) 3:00 pm	Stomate guard-cell area (nm^2)	Stomates/dm^2 lower leaf
Kenhy	42	59.18*	26.86	1452.56	219,700*
Ky 31	48	94.30	23.94	1545.36	248,700

1/ Length x width

* Significant at P = .05.

Graph #1 Percent Leaf Roll vs Time of Day 48 hrs water stress period.



Ky 31 tall fescue = dash line

Kenhy tall fescue = solid line

Table 8. I.V.D.M.D.[1/] digestibility of tall fescue varieties evaluated in several states.

State	Year of Test	Varieties		
		Kenhy	Ky 31	Fawn
Iowa	1972[2/]	67.5 *	65.5	63.5
	1973[3/]	71.3 *	67.3	65.9
	1974[4/]	64.6	62.8	62.3
	1973[5/]	68.1 *	63.9	63.6
	1974[6/]	64.9	64.3	62.8
Mo.	1972[7/]	62.7 * *	59.2	—
	1973[8/]	52.7	51.2	
Okla.	1974[11/]	76.3	68.1	
N. Car.	1972[9/]	75.4	71.1	
Pa.	1972[10/]	70.4 *	66.4	
Mean		66.4	63.5	63.6

% Kenhy over Ky 31 = 4.4%

1/ Percentage in vitro digestible dry matter determined by Tilley-Terry method.

2/ $\bar{X}$ of samples taken 7/20; 8/31/72; Kenhy significantly more digestible P = .05 than other varieties.

3/ $\bar{X}$ of samples taken 7/10; 8/21; 10/16/73; Kenhy significantly superior to other varieties P = .05 except 7/10 sampling where Kenhy superior only to Fawn.

4/ Sample taken 9/26/74

5/ $\bar{X}$ of samples taken 7/13; 9/5/73; Kenhy significantly superior to other varieties for I.V.D.M.D. (P = .05) at both samplings.

6/ $\bar{X}$ of samples taken 7/16; 9/19/74.

7/ $\bar{X}$ of samples taken 5/16; 8/9; 11/27/72. Mean difference of samplings and varieties significant (P = .01)

8/ $\bar{X}$ of samples taken 6/4; 7/31; 10/23/73

9/ $\bar{X}$ of samples taken 4/20; 5/12; 10/26/72

10/ $\bar{X}$ of samples taken 7/25; 9/23/72. I.V.D.M.D. differences significant at P = .05 for both samplings.

11/ Sampled 2/22/74

Table 9 Indices of amino acid content of tall fescue varieties grown in Kentucky

Test 21 (1971)

Varieties	Arginine	Cystine	Histidine	Leucine	Lycine	Methionine	Threonine
Kenhy	1.39	1.17*	1.18	1.16*	1.19*	.93	1.27
Ky 31	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Kenwell	1.10	1.15	.88	1.20	1.29	.87	.95

1/ Index of Ky 31 = 1.0

*Significant at .05.

Table 10 Percent fiber and lignin of dry matter of tall fescue varieties grown in Kentucky

Test 21

Varieties	Fiber 1970	Fiber 1971	Fiber 1972	Fiber Mean	Lignin 1970	Lignin 1971	Lignin 1972	Lignin Mean
Kenhy	25.3**	24.4	25.2	25.0**	1.8*	1.9	2.0	1.9*
Ky 31	26.5	25.1	25.9	25.8	2.2	2.0	2.2	2.2
Kenwell	24.5	23.6	24.6	24.2	2.2	2.1	2.2	2.1
L.S.D. .05	.4	-	-	.5	.2	-	-	.1
.01	.5	-	-	.7	n.s.	-	-	.2
CV.(%)	1.7	-	-	2.2	13.7	-	-	5.8
%Ky31(>) Kenhy=	5	3	3	3	18	5	9	14

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
Grain and Seed Division
National Agricultural Library
Beltsville, Maryland 20705

PLANT VARIETY PROTECTION OFFICE

Gentlemen:

Subject: Application No. 7600081
Variety and Kind - 'Kenhy,' Tall Fescue

As provided in section 83(a) of the Plant Variety Protection Act, 7 U.S.C. 2321, we request that the Certificate on the above variety be issued with a notation on each Certificate that the right to exclude others from selling, offering for sale, reproducing, importing or exporting the variety covered by this Certificate, or using it in producing a hybrid or different variety is waived.

It has been agreed that the certificate should be issued in the name(s) of:

Kentucky Agricultural Experiment Station, University of Kentucky

Agricultural Research Service, U.S. Department of Agriculture

August 18, 1977 (Date) Robert C. Brückner (Signature)

00013

FORM GR-470-37
(3-76)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF VARIETY
FESCUE
(Festuca spp.)

NAME OF APPLICANT(S)
University of Kentucky

VARIETY NAME OR TEMPORARY DESIGNATION
'Kenhy'

ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)
Agronomy Department
Agricultural Science Center-North
Lexington, Kentucky 40506

FOR OFFICIAL USE ONLY
PVPO NUMBER
7600081

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less. Characteristics described, including numerical measurements, should represent those that are typical for the variety. Ranges may be given also. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors; designate system used:_____. Describe location of test area_____.
All questions need not be answered, however, completeness should be striven for in order to establish the most adequate Variety Identification.

1. SPECIES: (With comparison varieties for use below - use varieties within species of application variety)

[1]
1 = F. ARUNDINACEA (TALL) 11 = ALTA 12 = FAWN 13 = GOAR 14 = KENTUCKY 31
2 = F. PRATENSIS (MEADOW) 21 = ENSIGN 22 = TRADER
3 = F. RUBRA SSP. COMMUTATA (CHEWINGS) 31 = CASCADE 32 = HIGHLIGHT 33 = JAMESTOWN
4 = F. RUBRA SSP. RUBRA (RED) 41 = BOREAL 42 = PENNLAWN 43 = DAWSON
5 = F. OVINA VAR. OVINA (SHEEP)
6 = F. LONGIFOLIA (HARD) 61 = DURAR 62 = BILJART (C-26) 63 = SCALDIS
7 = OTHER (SPECIFY) F._____

2. CYTOLOGY

[4][2] 2n CHROMOSOME NUMBER

3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adapted)

[2] NORTHEAST [2] SOUTHEAST [2] NORTH CENTRAL [0] PACIFIC N.W. [ ] OTHER (SPECIFY)_____

4. MATURITY: (50% Headed) Give Test Area _____

[ ][ ] DAYS EARLIER THAN . . . . . [ ][ ]
MATURITY SAME AS . . . . . [ ][ ] } COMPARISON VARIETY
[0][3] DAYS LATER THAN . . . . . [1][4]

5. PLANT HEIGHT: (At maturity to top of panicle)

[11][7][0] mm HEIGHT
[ ][ ] mm SHORTER THAN . . . . . [ ][ ]
HEIGHT SAME AS . . . . . [1][4] } COMPARISON VARIETY
[ ][ ] mm TALLER THAN . . . . . [ ][ ]

6. GROWTH HABIT (Mature)

[1] 1 = ERECT (KENTUCKY 31) 2 = SEMI-ERECT (HIGHLIGHT) 3 = PROSTRATE

7. RHIZOMES No information.

[ ][ ] mm LENGTH [ ][ ] mm WIDTH

[ ] 0 = ABSENT 1 = WEAKLY CREEPING (DAWSON) 2 = STRONGLY CREEPING (BOREAL) 3 = OTHER _____

8. LEAF BLADE:

[3] COLOR: 1 = LIGHT GREEN (GOLFROOD) 2 = MODERATELY LIGHT GREEN (HIGHLIGHT) 3 = MEDIUM GREEN (JAMESTOWN, KENTUCKY 31)
4 = DARK GREEN (CASCADE) 5 = BLUEGREEN 6 = GRAYGREEN 7 = OTHER(SPECIFY)_____

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8. LEAF BLADE:

[1] ANTHOCYANIN: 0 = ABSENT 1 = PRESENT [1] HAIRS (BASAL): 0 = ABSENT 1 = PRESENT [2] MARGINS: 1 = SMOOTH 2 = SEMI-ROUGH 3 = ROUGH

[ ][ ][ ] mm LENGTH (FIRST LEAF BELOW FLAG LEAF) [ ][ ] mm WIDTH

No information

[ ][ ] mm SHORTER THAN . . . . [ ][ ] LENGTH SAME AS . . . . . [ ][ ] mm LONGER THAN . . . . } COMPARISON VARIETY

[ ][ ] mm NARROWER THAN . [ ][ ] WIDTH SAME AS . . [ ][ ] mm WIDER THAN . . } COMPARISON VARIETY

9. LEAF SHEATH (Plant Base):

[2] COLOR: 1 = WHITE (HIGHLIGHT) 2 = RED [1] AURICLE HAIRINESS: 0 = ABSENT 1 = PRESENT

10. PANICLE (Mature plant)

[0][1][6] NUMBER OF PANICLES PER PLANT (FIRST YEAR OF PRODUCTION - FALL OR SPRING PLANTING SPECIFY Fall

[3][0][0] mm LENGTH [0.][6][7] GRAMS OF SEED PER PANICLE

[ ][ ] mm SHORTER THAN . . . [ ][ ] LENGTH SAME AS . . . [ ][ ] mm LONGER THAN . . . } COMPARISON VARIETY

[ ][ ] GRAMS LESS SEED THAN [ ][ ] WEIGHT SAME AS . . [.][1][0] GRAMS MORE SEED THAN [1][4] } COMPARISON VARIETY

[1] SHAPE: 1 = NARROW-TAPERING 2 = EGG SHAPE 3 = OBLONG 4 = OTHER (SPECIFY) _____

[1] TYPE: 1 = OPEN 2 = INTERMEDIATE 3 = COMPACT

[1] HABIT: 1 = ERECT 2 = NODDING

[ ] BRANCHES: 1 = SMOOTH 2 = ROUGH

[2] COLOR (At 50% flowering): 1 = YELLOWISH GREEN 2 = GREEN 3 = BLUISH GREEN 4 = PURPLISH 5 = REDDISH 6 = OTHER (SPECIFY) _____

11. PALEA:

[ ] HAIRS (ON KEELS): 0 = ABSENT 1 = SHORT (OLDS) 2 = LONG (RAINIER)

12. LEMMA:

[0] HAIRS: 0 = ABSENT 1 = PRESENT [1] TEXTURE: 1 = SMOOTH 2 = ROUGH

[ ][ ] mm LEMMA LENGTH No information [ ][ ] mm LEMMA WIDTH No information

[ ][ ] mm SHORTER THAN . . . . [ ][ ] LENGTH SAME AS . . . . [ ][ ] mm LONGER THAN . . . . } COMPARISON VARIETY

[ ][ ] mm NARROWER THAN [ ][ ] WIDTH SAME AS . . . [ ][ ] mm WIDER THAN. . . } COMPARISON VARIETY

[1] AWNS: 0 = ABSENT 1 = PRESENT

[ ][ ] mm AWN LENGTH No information

760008 / KENHY

12. LEMMA: No information

mm SHORTER THAN . . .
LENGTH SAME AS . . . . } COMPARISON VARIETY
mm LONGER THAN . . . .

13. SEED: No information

mm LENGTH
mm WIDTH No information

mm SHORTER THAN . . } COMPARISON VARIETY
LENGTH SAME AS . . .
mm LONGER THAN . . .

mm. NARROWER THAN } COMPARISON VARIETY
WIDTH SAME AS . .
mm WIDER THAN . .

GRAMS PER 1000 SEED
GRAMS LESS THAN . } COMPARISON VARIETY
WEIGHT SAME AS . .
GRAMS MORE THAN .

14. DISEASE, INSECT, AND NEMATODE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

2	HELMINTHOSPORIUM VAGANS	0	H. SOROKINIANUM	1	H. DICTYOIDES
1	RHIZOCTONIA SOLANI	2	ERYSIPHE GRAMINIS	0	USTILAGO STRIIFORMIS
0	FUSARIUM NIVALE	0	F. ROSEUM	0	TYPHULA IOTANA
0	PUCCINIA GRAMINIS	0	P. STRIIFORMIS	0	P. POAE-NEMORALIS
1	P. CORONATA	0	PYTHIUM ULTIMUM	0	CORTICIUM FUSCIFORME
0	SCLEROTINIA HOMEOCARPA	0	INSECT	0	NEMATODE
	OTHER		OTHER		OTHER

15. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY. For the following characteristics indicate degree of resemblance (D.R.) by placing in the column marked, D.R., one of the following numbers:

1 = Application variety is less than comparison variety 2 = Same as

3 = More than, better, greater, darker, more disease resistant, etc.

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D. R.
RHIZOME LENGTH	Ky. 31	2	GROWTH HABIT	Ky. 31	2
LEAF WIDTH	"	3	LEAF COLOR	"	3
PANICLE COLOR	"	2	PANICLE SHAPE	"	2
WINTER COLOR	"	3	COLD INJURY	"	3
SHADE TOLERANCE	"	2	HEAT	"	3
DROUGHT	"	3	DISEASE*	"	2

*Specify each disease evaluated. Helminthosporium sp.; leaf rust (Puccinia coronata).

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